REMARKS/ARGUMENTS

In response to the Office Action of November 29, 2006, applicants have carefully reviewed the Examiner's comments along with the references referred to in the Office Action, and accordingly, applicants are replacing claims 35-53 with new claims 54-71 to distinguish applicants' one-piece fiber reinforced core more clearly from the references and to place these claims in condition for allowance with claims 18, 19 and 22-34, the allowance of which is hereby noted.

With respect to applicants' Day et al Patent No. 6,740,381 and the corresponding PCT application Publication No. WO 01/47706 which have common inventors with the present application, applicants have claimed in their Declaration the benefit of the filing date of December 27, 2000 of their prior '381 Patent and corresponding PCT application and have also filed a Terminal Disclaimer which has been accepted with respect to their '381 Patent. Accordingly, applicants are entitled to the benefit of the filing date of December 27, 2000 of the '381 Patent and corresponding PCT application and submit that neither the patent nor the publication are available as a reference under 35 U.S.C. 102(b) or 103(a), since the invention was not described in a printed publication more than one year prior to applicants' priority filing date of December 27, 2000. Accordingly, applicants request that their '381 Patent and their PCT publication be withdrawn as a reference.

Applicants' new claims 54-71 have been revised to more clearly describe the basic features which distinguish applicants' invention from Tunis III, et al Patent No. 5,904,972 (Tunis). More specifically, every core described by Tunis is always a single block, and in every Tunis drawing, every individual block is designated as a core. Fiber material may be attached to each separate block prior to placing it in a mold. A plurality of these single-block cores is then arranged against a rigid mold surface to form a composite structure. In contrast, in applicants' cores as described in new claims 54-71, a plurality of blocks and/or strips are always connected together or unitized prior to application of the skins and moving to the molding apparatus. In Tunis, the individual core blocks are never connected together or unitized prior to application of the skins.

Every core in Applicants' new claims 54-71 comprises a plurality of blocks or strips or tubes connected together with fibrous material in various configurations, and this core assembly exists as a one-piece unit prior to being placed in a mold. A fundamental advantage of Applicants' invention is that it markedly reduces the labor associated with placing numerous individual core pieces in a mold.

In Applicants' new claims 54-65 a plurality of blocks or strips, together with connected reinforcements between the blocks or strips, are surrounded by one or more sets of helically extending fibrous rovings, and these rovings are unbroken, or continuous, along the entire length of all of these blocks or strips. This construction provides an important and highly efficient structural continuity across adjacent blocks or strips, and is neither suggested nor taught by Tunis.

For purposes of clarification, Applicants respectfully invite the Examiner's attention to several drawings in Tunis which bear a confusing resemblance to applicants' drawings, but which actually represent quite different structures. FIGS. 14 and 15 in Tunis show microgrooves 142 machined or molded into the surface of the core block to facilitate the flow of resin. These grooves extend helically around the block and are drawn in such a way that they bear a confusing resemblance to the helically extending fibrous rovings which are an important structural feature of applicants' invention.

Similarly, microgrooves 18 in FIG. 1 of Tunis, microgrooves 54 in FIG. 5, and microgrooves 18 in FIG. 10 are drawn in such a way that they resemble fibrous reinforcing webs 222 in applicants' FIG. 17 and fibrous reinforcing webs 302 in applicants' FIG. 27. Each of these Tunis drawings shows a single block of material, whereas each of applicants' drawings shows a plurality of blocks, connected together, separated by reinforcing webs and contained within the continuous helically extending rovings described above.

As mentioned above and as set forth in new claims 54-64, each of independent claims 54 and 59 is directed to a one-piece fiber reinforced core adapted to be inserted into molding apparatus for receiving skins, and wherein the core comprises an elongated strip including a series of longitudinally arranged adjacent blocks of low density rigid material, at least one set of continuous fibrous rovings each helically surrounding the strip and extending continuously along the entire length of the strip around the entire series of blocks,

and further including reinforcing members or fibrous rovings separate from the continuous fibrous rovings and extending between adjacent blocks. Claim 54 is directed to the embodiment disclosed in FIGS. 16 & 17 and wherein the strip 220 includes the longitudinally arranged blocks 221 separated by reinforcing members 222, and the strip 220 has first and second sets of continuous fibrous rovings 176 & 177 each helically surrounding the strip along the entire length of the strip and around the entire series of blocks. The one-piece fiber reinforced core set forth in claim 59 is directed to the embodiment disclosed in connection with FIGS. 24 -27 and wherein fibrous rovings 176 & 177 helically surround each of the blocks and extend between adjacent blocks, and at least one set of continuous fibrous rovings 281 or 282 separate from the rovings extending between the blocks and helically surrounding the strip and extending continuously along the entire length of the strip around the entire series of blocks in the strip.

Applicants refer to Tunis in paragraph [0008] of their application. As mentioned above, in each embodiment of Tunis, each of the cores 12 (FIGS. 1, 2 & 10), 40 (FIG. 3), 50 (FIG. 5), 60 (FIGS. 6 & 7), 82 (FIG. 8), 132 (FIGS. 14-21) is a single block which is individually wrapped with fiber fabric 20 (FIG. 2), 84 (FIG. 8, 135 (FIG. 14) in the form of a cloth or mat. The cores or wrapped blocks may be solid (FIGS. 1, 2, 10, 15) or hollow (FIG. 14), and have various configurations with microgrooves 18 (FIGS. 1 & 10), 142 (FIG. 15) and feeder channels (14, 42, 52, 62) for distributing resin around the periphery of each block during the molding operation. Each wrapped block or core is individually placed on a mold surface or in a mold 29 (FIG. 2), 80 (FIG. 8), 144 (FIG. 14). The mold may receive many individually wrapped blocks which are placed by hand, one at a time, onto the mold surface which has received one or more sheets of fibrous fabric in the form of a cloth or mat to form a skin 22 (FIG. 2), 134 (FIG. 14). The skin fabric 22 (FIG. 2) or 134 (FIG. 14) may be wrapped around two or more wrapped block cores in the mold and the fabric 140 may extend between the wrapped block cores as described in connection with FIGS. 2, 8, 14 and 20.

Referring to paragraph 4 of the Office Action, FIG. 2 of Tunis is described in column 4, lines 7-54. The fibrous material 20, which is a cloth or mat, is wrapped around each block or core 12 and may extend between adjacent cores at 24 when the blocks or cores

are placed in the mold. The fiber cloth or mat 22 forming the skins in the mold may be wrapped around two or more blocks or cores. The fiber cloth or mat for each block may be applied to the block faces or may be in a tubular form which receives the block. Column 7, lines 52-67 of Tunis and column 8, lines 1-16 refer to FIGS. 14-21. Each block may be a hollow cell or a foam block and may be wrapped with fiber cloth or mat 135. Fiber cloth or mat forms the top and bottom skins 134 in the mold 144 and may extend between the wrapped blocks as shown at 140. FIG. 15 shows a core block 132 with microgrooves 142. Nowhere in Tunis is there any suggestion or teaching for at least one set or two sets of continuous fibrous rovings each helically surrounding a strip formed by a series of longitudinally arranged adjacent blocks with each roving extending continuously along the entire length of the strip around the entire series of blocks, as set forth in new claims 54-64. Moreover, there is no suggestion of any material surrounding a plurality of blocks prior to application of skins.

As applicants described in paragraph [0008], substantial labor is required for individually wrapping each block to form a wrapped core or block, and arranging the individually wrapped blocks in a mold, with or without strips of fabric between the blocks, is also labor intensive, expensive and time consuming. In contrast, applicants' one-piece fiber reinforced core is ready to be inserted into a mold and comprises an elongated strip or a plurality of connected strips each including a series of longitudinally arranged blocks of low density cellular material, and a layer of continuous fibrous rovings helically surround the strip and extend continuously along the entire length of the strip around the entire series of blocks in the strip and connect the blocks. As a result, applicants' core, which may be continuously produced on equipment such as disclosed in connection with FIG. 12, substantially reduces the time required for preparing a mold and for producing a fiber reinforced composite panel. As stated above, every embodiment of Tunis '972 involves individually wrapped blocks each of which forms a core, and each block is wrapped with a reinforcement fabric cloth or mat in sheet or tubular form and is separately handled. There is no teaching in this reference or in any other reference of applicants' core as set forth above in new claims 54 & 59 and the claims dependent therefrom.

Most of the above comments also apply to new claims 65-69 which are directed to a one-piece fiber reinforced core including a plurality of elongated strips of low density cellular material. In addition, new claim 65 is directed to the embodiment disclosed in connection with FIG. 31 wherein each of the elongated strips 170 within the core 330 has opposite faces attached to corresponding facer sheets 332 extending perpendicular between opposite surfaces of the core, a first layer and a second layer of continuous fibrous rovings 176, 177 with each of the fibrous rovings helically surrounding at least two adjacent strips and extending continuously along the entire length of the adjacent strips with the rovings in the second layer crossing over the rovings in the first layer and forming an elongated unitized core adapted to be moved as a preformed unit to the molding apparatus.

New claim 66 is directed to the one-piece fiber reinforced core disclosed in connection with FIG. 32 which also has a plurality of elongated parallel strips of low density cellular material and is also adapted to be moved as a preformed unit to molding apparatus. Claim 66 further includes a plurality of parallel spaced strips 178 each having a first set and a second set of continuous fibrous rovings with each of the rovings helically surrounding the parallel spaced strips and extending along the entire length of each strip and with the parallel spaced strips and helically surrounding rovings connected together to form the unitized one-piece fiber reinforced core. Since only alternating strips are provided with roving layers, the effective core production capacity of the winding apparatus is doubled. This efficient embodiment is neither disclosed nor suggested by Tunis or any other reference.

New claim 67 is directed to the one-piece fiber reinforced core 360 disclosed in connection with FIG. 34 and includes, in addition to a plurality of elongated parallel strips 170 of low density cellular material, a set of continuous fibrous rovings helically surrounding each strip and extending continuously along the entire length of the strip, the parallel strips and helically surrounding rovings are separated by elongated spacer strips 362 separate from the surrounding rovings and extending longitudinally the entire length of the strips of cellular material with all of the strips connected together to form the unitized core adapted to be moved as a preformed unit to the molding apparatus. Elongated spacer strips 362 increase the thickness of the reinforcing webs formed by the wound roving layer and

consequently substantially increase the buckling resistance of the webs. No such construction is suggested by Tunis.

Similarly, new claim 68 is directed to applicants' one-piece fiber reinforced core disclosed in connection with FIG. 33 and, in addition, each of the strips 350 has a portion of reduced thickness with generally parallel fibrous rovings 180 extending longitudinally along each of the strips and over the portion of reduced thickness and with a set of continuous fibrous rovings 176 helically surrounding each of the strips and the longitudinally extending rovings 180 and continuing over the portion of reduced thickness, and with the strips 350 connected together to form a unitized core adapted to be moved as a preformed unit to the molding apparatus. This construction provides a high-strength transition area for composite panels requiring changes in thickness and is not taught by the references.

New claim 69 is directed to applicants' one-piece fiber reinforced core embodiment disclosed in connection with FIGS. 20-23 and including at least one elongated parallel strip 261 and wherein the elongated strip 261 includes a series of connected blocks 170 of low density cellular material with at least one set of fibrous rovings 177 extending helically around each of the blocks with end portions 262 of the rovings terminating at opposite surfaces of the core and with the elongated strip 261 of connected blocks forming a unitized core adapted to be moved as a preformed unit and inserted into molding apparatus. Applicants' claim 69 clarifies that the unitized core comprises a plurality of blocks and associated reinforcements prior to application of the skins.

New claim 70 is directed to applicants' one-piece fiber reinforced core 380 disclosed in connection with FIG. 36 and adapted to be inserted into molding apparatus, and wherein the core includes a plurality of elongated hollow tubes 381 with fibrous rovings 176 helically surrounding each of the tubes and extending continuously along the entire length of the tube and with the elongated tubes and the helically surrounding rovings being connected together to form a unitized core adapted to be moved as a preformed unit to the molding apparatus. There is no suggestion in Tunis or any other reference of a single-piece unitized core comprised of connected together hollow tubes.

New claim 71 is directed to the embodiments of FIGS. 26 and 27 and includes a plurality of the elongated strips each including a series of blocks with the first and second

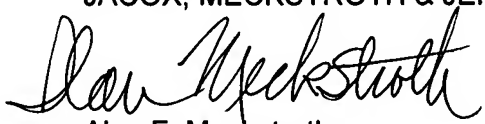
sets of continuous rovings as described above. Crossing rovings extend between adjacent blocks, and the strips are connected to form a unitized core which is adapted to be moved to a molding apparatus where the skins are added and the resin is hardened.

In view of the above basic differences between applicants' one-piece fiber reinforced core embodiments and each of the individually wrapped blocks or cores disclosed in Tunis, and the fact that there is no suggestion or teaching in Tunis or in any of the other references of applicants' core structures as set forth above in new independent claims 54, 59 and 65-71 and the claims dependent from claims 54 and 59, applicants believe that these claims set forth a core structure which is clearly distinguished from the references and in no way obvious in view of the references. Accordingly, applicants respectfully submit that these claims are in condition for allowance with claims 18, 19, 22-34 and 36-53, and request that this application be passed to issue. In the event the Examiner has any question with respect to any of the new claims presented in this Amendment, the Examiner is invited to call the undersigned attorney.

Included with this Amendment is a Request for Continued Examination, a Petition for a two month Extension of Time and a Fee Transmittal Form.

Respectfully submitted,

JACOX, MECKSTROTH & JENKINS



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